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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
JEAN-FRANCOIS STUMBE, ET AL.	: EXAMINER: DOLLINGER, MICHAEL M.
SERIAL NO: 10/575,342	:
FILED: APRIL 11, 2006	: GROUP ART UNIT: 1766
FOR: HYPERBRANCHED POLYMERS HAVING ETHYLENICALLY UNSATURATED GROUPS	:

REPLY BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is a Reply Brief in response to the Examiner's Answer dated December 20, 2010.

VII. ARGUMENT

Ground A

Rejection of Claims 1-5, 7-13, 15 and 16 under 35 U.S.C. 102(b) over Saitoh et al. (U.S. 5,566,027).

Claims 1-4, 7-13, 15 and 16

The claimed invention provides a hyperbranched polyester comprising ethylenically unsaturated groups, obtained by reacting at least one compound having at least one ethylenic double bond with at least one hyperbranched polyester. Appellants have referenced Flory and Sunder as defining hyperbranched polymers (page 10, lines 32-35). Appellants submit

that as originally described by Flory in Fig. 1, a hyperbranched polymer is a polymer having extensive branch on branch structure.

Appellants have described that to obtain the hyperbranched polyester according to the invention a trifunctional or higher functionality monomer must be present in each repeating unit of the polymer and specific control of monomer concentration and functional group equivalency such that a molar ratio of hydroxyl groups of the at least one at least trifunctional alcohol or at least one diol to carboxyl groups of the at least one dicarboxylic acid or at least one tricarboxylic or higher polycarboxylic acid, respectively, is from 1.5/1 to 1/1.5 in order to maximize branch formation and further growth.

The Examiner appears to impose a definition based on personal preference and in disregard for Appellants description of the present invention (Examiner's Answer dated December 20, 2010, page 10, lines 9-11). Appellants note that the reference cited by the Examiner [2010/0256255 (Stevens)] has a filing date (April 7, 2009) nearly six years after the filing date of the priority application (DE 103 48 463.9; October 14, 2003) in this case. Appellants further submit that it is not uncommon for development of more precise definitions over time in advancing technologies. Moreover, the description offered by Stevens is not inconsistent with the description of the specification (compare last lines of [0018] to page 10, lines 20-23 of the specification).

Appellants submit that the Examiner's interpretation of hyperbranched polyester being any polyester with a high degree of branching, particularly those formed from a substantial portion of tri- or greater functional monomer is not consistent with Appellants definition. Moreover by employing such terms as "high degree" and "substantial portion," the Examiner has created a definition which has little, if any, meaningful description.

Saitoh describes that the polyester oligomer is preferably prepared from polybasic acids and polyhydric alcohols having two to four functional groups (Col. 2, lines 53-56) and also describes that a preferable equivalent ratio of the **polybasic acid** to the **polyhydric alcohol** is from 100:105 to 100:300 (Col. 4, lines 1-3). The Examiner interprets this description in Saitoh as disclosing a molar ratio of hydroxyl groups and alleges the cited description reads on the claimed ratio of from 1.5/1 to 1/1.5.

However, Appellants submit that Production Example (II) (page 7, lines 19-27) describes a condensation of trimellitic anhydride (tribasic) and propylene glycol (dihydroxy). wherein 0.4 equivalents (77g/192g/mole) of trimellitic anhydride are condensed with 2.39 equivalents of propylene glycol (186g/76g/mole). Accordingly, the ratio of OH to CO_2H in this example is 4:1 (2.39 x 2: 0.4 x 3), a ratio outside the range of the claimed ratio of the invention (1.5/1 to 1/1.5) and consistent with Saitoh's description that the reaction is performed under the condition that the **polyhydric alcohol** is excessive (Col. 3, lines66-67).

Furthermore, Appellants again submit that Saitoh is silent with respect to a hyperbranched structure and does not provide guidance to produce a hyperbranched polymer as according to the claimed invention. As one skilled in the art, Saitoh would certainly have provided guidance or description related to formation of a hyperbranched structure. As such a wide range of polyhydric alcohol, including a high excess is within the preferred range, Appellants submit that a hyperbranched polyester structure cannot be inherent to the Saitoh description.

In view of all the above and the arguments presented in the Appeal Brief filed December 6, 2010, Appellants respectfully submit as that Saitoh does not disclose all the elements of the claimed invention and submit that the rejection of Claims 1-5, 7-13, 15 and 16 under 35 U.S.C. 102(b) over Saitoh should be reversed.

Ground B

Rejection of Claims 1, 2, 5, 7-13 and 15-17 under 35 U.S.C. 102(b) over Meixner et al. (U.S. 4,983,712).

Claims 1, 2, 7-13 and 15-17

Meixner describes a polyester having one or more acryloyl groups based on a polyester containing a dicarboxylic acid component and a polyol component **having both dihydric and trihydric alcohols** (Abstract). Examples of the invention (1-3) described in Table 1 contain 1 mole total of dicarboxylic component (i.e., 2 mole $-CO_2H$), 1.2 mole dihydric alcohol (ethylene glycol) and 0.5 mole trihydric alcohol (1.2 x 2 and 0.5 x 3 = 3.9 mole OH). Therefore, the reference describes a OH/ CO_2H ratio of 1.95 (3.9/2) which is not within the claimed range of the present invention.

Moreover, Appellants submit that the Meixner description does not even meet the Examiner's own definition of a hyperbranched polyester (substantial portion of tri- or greater) which as shown above is not consistent with the definition of the invention.

Appellants note that as described above, formation of a hyperbranched polymer structure requires branching potential at each polymer repeating unit. Meixner requires a nonbranching component, i.e., a dihydric alcohol. Each repeating unit of dyhydric alcohol cannot be a branch site and therefore, the Meixner polyester cannot be a hyperbranched structure.

Appellants further submit that one of ordinary skill in the art would recognize that due to the extreme amount of diol present in the reference polyester, twice as much as the triol, no hyperbranched polyesters could be formed. Rather, a completely alcohol-terminated polyester would be formed.

In view of all the above and the arguments presented in the Appeal Brief filed December 6, 2010, Appellants respectfully submit as that Meixner does not disclose all the

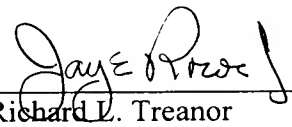
elements of the claimed invention and submit that the rejection of 1, 2, 5, 7-13 and 15-17 under 35 U.S.C. 102(b) over Meixner should be reversed.

CONCLUSION

In view of all the above and the arguments presented in the Appeal Brief filed December 6, 2010, Appellants request that all outstanding rejections of the pending claims should be reversed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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